

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A device for [reading an image] sensing a light comprising:

[a semiconductor layer formed on a substrate, said semiconductor layer comprising an image] a light sensor region and a semiconductor switch region adjacent to and operatively connected with said [image] light sensor region over an insulating substrate having a blocking layer,

wherein a semiconductor region of the light sensor region and an active region of the semiconductor switch region comprise the same semiconductor layer, the semiconductor layer having a semi-amorphous structure formed on the blocking layer over the insulating substrate, and

wherein [said semiconductor layer has a semi-amorphous structure comprising a mixture of amorphous and crystalline structures, in which] a Raman spectrum of the semiconductor [film] layer exhibits a peak deviated from that which stands for a single crystal of the semiconductor.

2. (Previously Presented) [The] A device [of] according to claim 1, wherein said semiconductor layer comprises hydrogen doped silicon.

3. (Previously Presented) [The device of claim 1 wherein said semiconductor switch region comprises a thin film transistor of which active region is formed of said semiconductor layer] An electric equipment having a device according to claim 1, wherein the electric equipment is selected from the group consisting of a facsimile machine, an image reader, and a digital copying machine.

4. (Previously Presented) [The] A device [of] according to claim 1, wherein said [image] light sensor region comprises at least two semiconductor regions having different electrical properties and forming a junction.

5. (Canceled) [A device for reading an image produced by a process comprising the steps of:

depositing a semiconductor material on a substrate;

forming a photoelectric conversion semiconductor device on said substrate comprising a p-type impurity semiconductor region, an intrinsic semiconductor region, and an n-type impurity semiconductor region, a semiconductor region of said photoelectric conversion semiconductor device being made of said semiconductor material; and

forming a thin film transistor on said substrate which constitutes an electric circuit required to read an image, a semiconductor region of said thin film transistor being made of said semiconductor material;

wherein said semiconductor regions are arranged in order with said p-type impurity semiconductor region adjacent said intrinsic semiconductor region and said intrinsic semiconductor region adjacent said n-type impurity semiconductor region in said photoelectric conversion semiconductor device, said order being in a direction perpendicular to that in which an image light to be read is incident thereon.]

6. (Previously Presented) [The] A device [of] according to claim [4] 1, wherein [said two semiconductor regions of the image sensor region are laterally arranged on said substrate] the semiconductor layer has lattice distortion and the peak of a laser Raman spectrum of the semiconductor layer is shifted to a lower wave number than 520cm⁻¹.

7. (Previously Presented) [The] A device [of claim 5 wherein said photoelectric conversion semiconductor device further comprises an amorphous semiconductor film

provided on a side of said intrinsic semiconductor region on which said image light is incident through said amorphous semiconductor film] for sensing a light comprising a photoelectric conversion semiconductor device, and n-channel thin film transistor, and a p-channel thin film transistor over an insulating substrate having a blocking layer, the device produced by a process comprising the steps of:

forming the blocking layer on the insulating substrate;

depositing a semiconductor layer on the blocking layer;

forming at least first, second, and third semiconductor islands by patterning the semiconductor layer;

forming first, second, and third conductive layers over the first, second, and third semiconductor islands with an insulating film interposed therebetween, respectively;

adding p-type impurities to the first semiconductor island and a first portion of the third semiconductor island by using the first and third conductive layers as masks; and

adding n-type impurities to the second semiconductor island and a second portion of the third semiconductor island by using the second and third conductive layers as masks,

wherein the semiconductor layer has lattice distortion and the peak of a laser Raman spectrum of the semiconductor layer is shifted to a lower wave number than 520cm^{-1} .

8. (Canceled) [A device for reading an image comprising:

a semiconductor layer formed on a substrate, said semiconductor layer comprising an image sensor region and a semiconductor switch region adjacent to and operatively connected with said image sensor region.

wherein said semiconductor layer has at least one of an electron mobility $15\text{-}100\text{ cm}^2/\text{V}\cdot\text{sec}$ and a hole mobility $10\text{-}100\text{ cm}^2/\text{V}\cdot\text{sec}$.]

9. (Canceled) [A device for reading an image comprising:

a semiconductor layer formed on a substrate, said semiconductor layer comprising an image sensor region and a semiconductor switch region adjacent to and operatively connected with said image sensor region.

wherein said semiconductor layer has a semi-amorphous structure in which a Raman spectrum of the semiconductor film exhibits a peak deviated from that which stands for a single crystal of the semiconductor, and said semiconductor switch region comprises complementary p-channel and n-channel thin film transistors.]

10. (Previously Presented) [The] A device [of claim 9] for sensing a light comprising:

a light sensor region and n-type and p-type semiconductor switch regions adjacent to and operatively connected with said light sensor region over an insulating substrate having a blocking layer,

wherein a semiconductor region of the light sensor region and active regions of the n-type and p-type semiconductor switch regions comprise the same semiconductor layer formed on the blocking layer located on the insulating substrate,

wherein a Raman spectrum of the semiconductor layer exhibits a peak deviated from that which stands for a single crystal for the semiconductor, and

wherein said semiconductor [film] layer comprises hydrogen doped silicon.

11. (Previously Presented) [The] A device [of] according to claim [9] 10, wherein said [image] light sensor region comprises at least two semiconductor regions having different electrical properties and forming a junction.

12. (Previously Presented) [The] A device [of] according to claim 11, wherein said two semiconductor regions in said [image] light sensor region are arranged in a lateral direction on said substrate.

13. (Currently Amended) [The] A device [of] according to claim [9] 10, wherein said semiconductor layer has at least one of an electron mobility in a range from [15 to 100] 15 to 300 cm²/V·sec and a hole mobility in a range from [10 to 100] 10 to 200 cm²/V·sec.

14. (Currently Amended) [The] A device [of] according to claim 1, wherein said semiconductor layer has at least one of an electron mobility in a range from [15 to 100] 15 to 300 cm²/V·sec and a hole mobility in a range from [10 to 100] 10 to 200 cm²/V·sec.

15. (Currently Amended) A device for reading an image comprising:
an image sensor region and a semiconductor switch region adjacent to and
operatively connected with said image sensor region over an insulating substrate having
a blocking layer.

wherein a semiconductor region of the image sensor region and an active region
of the semiconductor switch region comprise the same semiconductor layer formed on
the blocking layer located on the insulating substrate, and

wherein said semiconductor layer has a semi-amorphous structure comprising a
mixture of amorphous and crystalline structures, in which a Raman spectrum of the
semiconductor layer exhibits a peak deviated from that which stands for a single crystal
of the semiconductor.

16. (Previously Presented) A device according to claim 15 wherein said
semiconductor layer comprises hydrogen doped silicon.

17. (Previously Presented) A device according to claim 15 wherein said
semiconductor switch region comprises a thin film transistor of which the active region is
formed of said semiconductor layer.

18. (Previously Presented) A device according to claim 15 wherein said image sensor region comprises at least two semiconductor regions having different electrical properties and forming a junction.

19. (Canceled)

20. (Previously Presented) A device according to claim 15 wherein the semiconductor layer has lattice distortion and the peak of a laser Raman spectrum of the semiconductor layer is shifted to a lower wave number than 520cm^{-1} .

21. (Previously Presented) A device for reading an image produced by a process comprising the steps of:

forming a blocking layer on an insulating substrate;

depositing a semiconductor layer on the blocking layer;

forming at least first, second, and third semiconductor islands by patterning the semiconductor layer;

forming first, second, and third conductive layers over the first, second, and third semiconductor islands with an insulating film interposed therebetween, respectively;

adding p-type impurities to the first semiconductor island and a first portion of the third semiconductor island by using the first and third conductive layers as masks; and

adding n-type impurities to the second semiconductor island and a second portion of the third semiconductor island by using the second and third conductive layers as masks,

wherein the third semiconductor islands has a p-type impurity semiconductor region adjacent an intrinsic semiconductor region and an n-type impurity semiconductor region adjacent the intrinsic semiconductor region in order in a direction perpendicular to that in which an image to be read is incident thereon, and

wherein the semiconductor layer has lattice distortion and the peak of a laser Raman spectrum of the semiconductor layer is shifted to a lower wave number than 520cm^{-1} .

22. (Canceled)

23. (Currently Amended) A device for reading an image comprising:
an image sensor region and a semiconductor switch region adjacent to and
operatively connected with said image sensor region over an insulating substrate having
a blocking layer,

wherein a semiconductor region of the image sensor region and an active region
of the semiconductor switch region comprise the same semiconductor layer formed on
the blocking layer located on the insulating substrate, and

wherein said semiconductor layer has a semi-amorphous structure in which a
Raman spectrum of the semiconductor layer exhibits a peak deviated from that which
stands for a single crystal of the semiconductor, and said semiconductor switch region
comprises complementary p-channel and n-channel thin film transistors.

24. (Previously Presented) A device according to claim 23 wherein said
semiconductor layer comprises hydrogen doped silicon.

25. (Previously Presented) A device according to claim 23 wherein said image
sensor region comprises at least two semiconductor regions having different electrical
properties and forming a junction.

26. (Previously Presented) A device according to claim 25 wherein said two
semiconductor regions in said image sensor region are arranged in a lateral direction on
said substrate.

27. (Currently Amended) A device according to claim 23 wherein said semiconductor layer has at least one of an electron mobility in a range from 15 to 300 cm²/V·sec and a hole mobility in a range from 10 to 200 cm²/V·sec.

28. (Currently Amended) A device according to claim 15 wherein said semiconductor layer has at least one of an electron mobility in a range from 15 to 300 cm²/V·sec and a hole mobility in a range from 10 to 200 cm²/V·sec.

29. (Canceled)

30. (Currently Amended) A device according to claim 21 wherein said semiconductor layer has at least one of an electron mobility greater than 15 cm²/V·sec and a hole mobility greater than 10 cm²/V·sec.

31. (Canceled)

32. (Previously Presented) A device according to claim 46, wherein said blocking layer comprises silicon oxide.

33. (Canceled)

34. (Currently Amended) A device according to claim 46, wherein said p-type impurity regions contain boron.

35. (Previously Presented) A device according to claim 46, wherein said n-type impurity regions contain phosphorus.

36. (Currently Amended) A device comprising:
an insulating substrate;

a blocking layer on said insulating substrate;
first, second, and third semiconductor islands on said blocking layer;
p-type impurity regions in said first semiconductor island with a first channel
region interposed therebetween and in a first region of said third semiconductor island;
n-type impurity regions in said second semiconductor island with a second
channel region and in a second region of said third semiconductor island;
an insulating film on said first, second, and third semiconductor islands; and
first and second gate electrodes over said first and second channel regions,
respectively, with said insulating film interposed therebetween,
wherein a Raman spectrum of each of said first, second, and third semiconductor
islands exhibits a peak deviated from that which stands for a single crystal of the
semiconductor, and
wherein said first semiconductor island has a mobility of 10 to 300 cm²/V·sec and
said second semiconductor island has a mobility of 15 to 300 cm²/V·sec.

37. (Previously Presented) A device according to claim 36, wherein said blocking layer comprises silicon oxide.

38. (Previously Presented) A device according to claim 36, wherein said gate insulating film is a silicon oxide film containing fluorine.

39. (Previously Presented) A device according to claim 36, wherein said p-type impurity regions contain boron.

40. (Previously Presented) A device according to claim 36, wherein said n-type impurity regions contain phosphorus.

41. (Currently Amended) A device for sensing a light comprising:

a light sensor region and a semiconductor switch region adjacent to and operatively connected with said light sensor region over an insulating substrate having a blocking layer,

wherein a semiconductor region of the light sensor region and an active region of the semiconductor switch region comprise the same semiconductor layer formed on the blocking layer located on the insulating substrate,

wherein said semiconductor layer has at least one of an electron mobility in a range of 15 to 300 cm²/V·sec and a hole mobility in a range of 10 to 200 cm²/V·sec, and

wherein the semiconductor layer has lattice distortion and the peak of a laser Raman spectrum of the semiconductor layer is shifted to a lower wave number than 520cm⁻¹.

42. (Previously Presented) A device according to claim 10 wherein the semiconductor layer has lattice distortion and the peak of a laser Raman spectrum of the semiconductor layer is shifted to a lower wave number than 520cm⁻¹.

43. (Currently Amended) A device for reading an image comprising:

an image sensor region and a semiconductor switch region adjacent to and operatively connected with said image sensor region over an insulating substrate having a blocking layer,

wherein a semiconductor region of the light sensor region and an active region of the semiconductor switch region comprise the same semiconductor layer formed on the blocking layer located on the insulating substrate,

wherein said semiconductor layer has at least one of an electron mobility in a range of 15 to 300 cm²/V·sec and a hole mobility in a range of 10 to 200 cm²/V·sec, and

wherein the semiconductor layer has lattice distortion and the peak of a laser Raman spectrum of the semiconductor layer is shifted to a lower wave number than 520cm⁻¹.

44. (Previously Presented) A device according to claim 23 wherein the semiconductor layer has lattice distortion and the peak of a laser Raman spectrum of the semiconductor layer is shifted to a lower wave number than 520cm^{-1} .

45. (Currently Amended) A device for sensing a light comprising:
a light sensor region and a semiconductor switch region adjacent to and
operatively connected with said light sensor region over an insulating substrate having a
blocking layer,

wherein a semiconductor region of the light sensor region and an active region of
the semiconductor switch region comprise the same semiconductor layer formed on the
blocking layer located on the insulating substrate,

wherein said semiconductor layer has at least one of an electron mobility greater
than $15\text{ cm}^2/\text{V}\cdot\text{sec}$ and a hole mobility greater than $10\text{ cm}^2/\text{V}\cdot\text{sec}$, and

wherein the semiconductor layer has lattice distortion and the peak of a laser
Raman spectrum of the semiconductor layer is shifted to a lower wave number than
 520cm^{-1} .

46. (Previously Presented) A semiconductor device comprising:
an insulating substrate;
a blocking layer on said insulating substrate;
first, second, and third semiconductor islands on said blocking layer;
p-type impurity regions in said first semiconductor island with a first channel
region interposed therebetween and in a first region of said third semiconductor island;
n-type impurity regions in said second semiconductor island with a second
channel region and in a second region of said third semiconductor island;
an insulating film on said first, second, and third semiconductor islands; and
first and second gate electrodes over said first and second channel regions,
respectively, with said insulating film interposed therebetween,

wherein a Raman spectrum of each of said first, second, and third semiconductor islands exhibits a peak deviated from that which stands for a single crystal of the semiconductor, and

wherein the semiconductor layer has lattice distortion and the peak of a laser Raman spectrum of the semiconductor layer is shifted to a lower wave number than 520cm^{-1} .

47. (Previously Presented) A device according to claim 36 wherein the semiconductor layer has lattice distortion and the peak of a laser Raman spectrum of the semiconductor layer is shifted to a lower wave number than 520cm^{-1} .

48. (Previously Presented) An electric equipment having a device according to claim 7, wherein the electric equipment is selected from the group consisting of a facsimile machine, an image reader, and a digital copying machine.

49. (Previously Presented) An electric equipment having a device according to claim 41, wherein the electric equipment is selected from the group consisting of a facsimile machine, an image reader, and a digital copying machine.

50. (Previously Presented) An electric equipment having a device according to claim 10, wherein the electric equipment is selected from the group consisting of a facsimile machine, an image reader, and a digital copying machine.

51. (Previously Presented) An electric equipment having a device according to claim 15, wherein the electric equipment is selected from the group consisting of a facsimile machine, an image reader, and a digital copying machine.

52. (Previously Presented) An electric equipment having a device according to claim 21, wherein the electric equipment is selected from the group consisting of a facsimile machine, an image reader, and a digital copying machine.

53. (Previously Presented) An electric equipment having a device according to claim 43, wherein the electric equipment is selected from the group consisting of a facsimile machine, an image reader, and a digital copying machine.

54. (Previously Presented) An electric equipment having a device according to claim 23, wherein the electric equipment is selected from the group consisting of a facsimile machine, an image reader, and a digital copying machine.

55. (Previously Presented) An electric equipment having a device according to claim 45, wherein the electric equipment is selected from the group consisting of a facsimile machine, an image reader, and a digital copying machine.

56. (Previously Presented) A device according to claim 46, wherein the semiconductor device is an electric equipment selected from the group consisting of a facsimile machine, an image reader, and a digital copying machine.

57. (Previously Presented) A device according to claim 36, wherein the semiconductor device is an electric equipment selected from the group consisting of a facsimile machine, an image reader, and a digital copying machine.

58. (Previously Presented) A device according to claim 46, wherein the first and second semiconductor islands are located in a semiconductor switch region of the semiconductor device and the third semiconductor island is located in a light sensor region of the semiconductor device.

59. (Previously Presented) A device according to claim 36, wherein the first and second semiconductor islands are located in a semiconductor switch region of the semiconductor device and the third semiconductor island is located in a light sensor region of the semiconductor device.